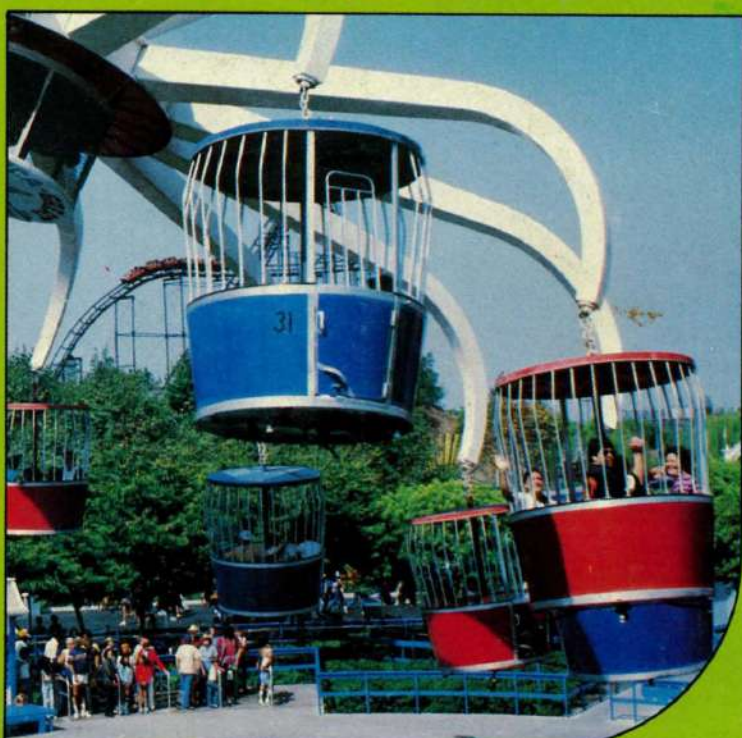
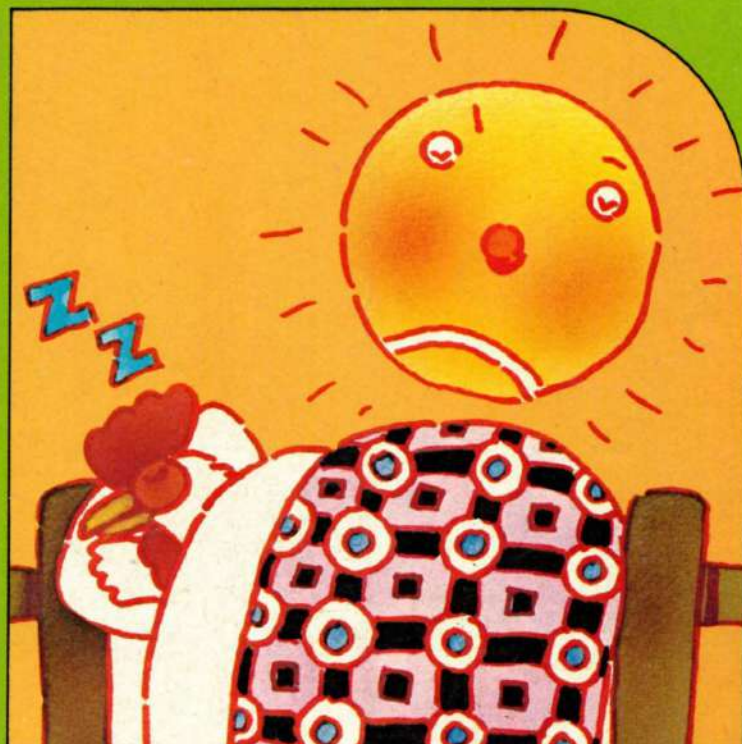


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Diving for Underwater Treasure





The Net Result?

It could be a fish, a frog, a bug or anything else that lives in a pond. The kids here know one fun way to spend their summer vacation. They're collecting pond life.

Whether there's a pond where you live or not, you can also do some collecting this summer. To see what we mean, turn to page 16.

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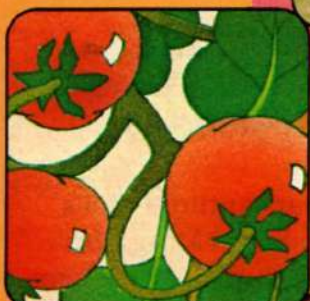
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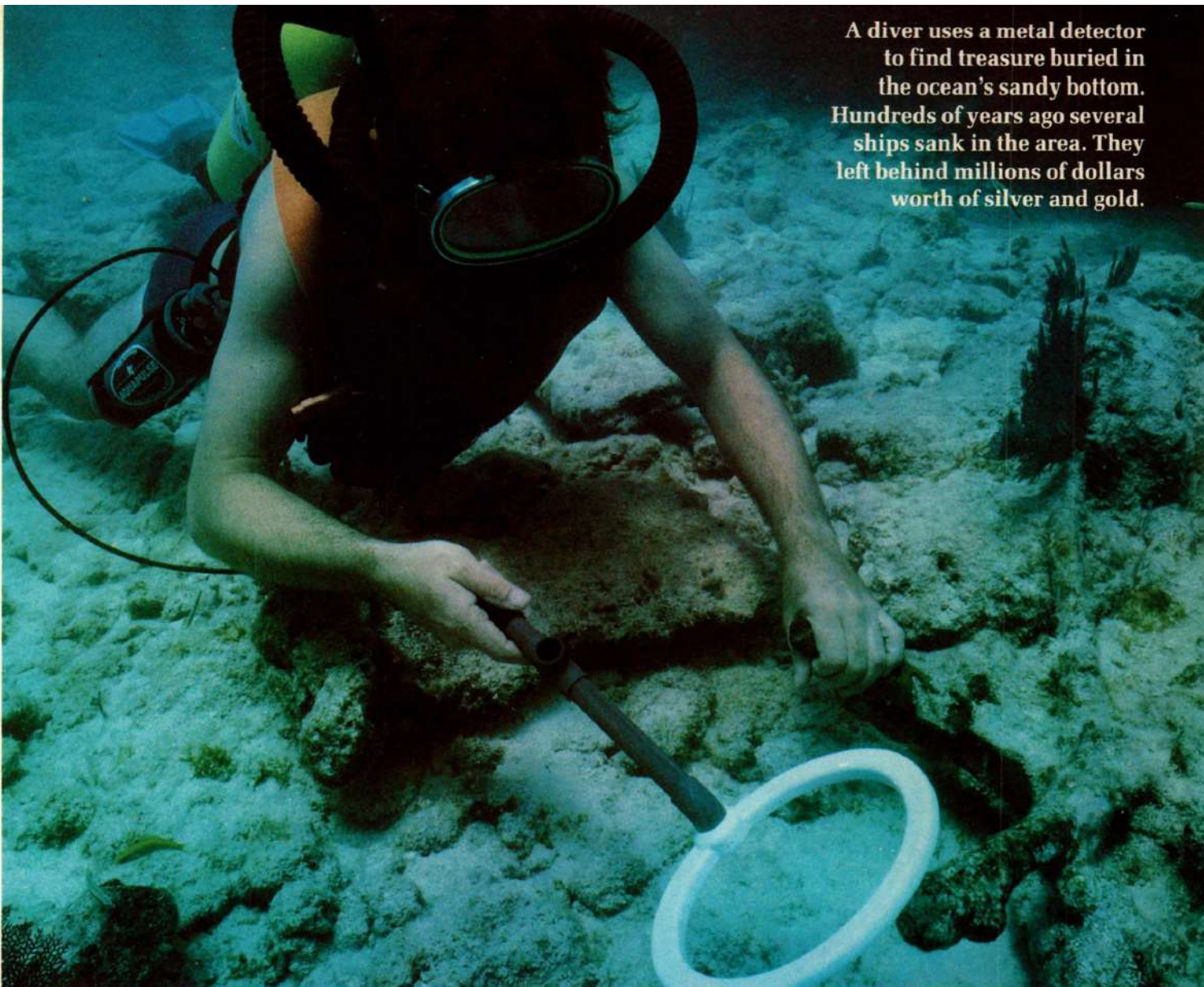


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A full-page photograph of a diver in a black wetsuit and mask, kneeling on a sandy ocean floor. The diver is holding a metal detector with a long black shaft and a circular white coil. The diver's air tank is visible on their back. The water is clear, and the seabed is covered in sand and some small rocks.

A diver uses a metal detector to find treasure buried in the ocean's sandy bottom. Hundreds of years ago several ships sank in the area. They left behind millions of dollars worth of silver and gold.

TREASURE

SEARCHING THE SEAS FOR GOLD

This is the moment he has been waiting for. As he swims along the ocean bottom, Mel Fisher spots something shiny. Could it be what he hopes? Yes, it's gold!

"Once you've seen the ocean carpeted with gold coins, you'll never forget it," Mel says. He should know. For 17 years, he has searched the warm clear waters of Florida for shipwrecks. Mel is an underwater treasure hunter. He has found more treasure than any person alive.

There are plenty of shipwrecks near the Florida coast to keep Mel busy. In the 17th century, many Spanish ships sailed in the area. They carried gold, silver, copper, dyes and tobacco. But when loaded with cargo, the ships were no match for bad storms

at sea. Many of them sank. And ever since, treasure hunters like Mel Fisher have been trying to find those ships and bring up their wealth.

The Long Search

Two shipwrecks in particular captured Mel's attention. The *Atocha* and the *Santa Margarita* sank within sight of each other during a hurricane in 1622. Both carried great riches. Over the years, there had been many different rumors about where the sunken ships were located. Mel chose one spot and searched there for five years. But he found nothing. Then a fresh clue came to light.

"One of our researchers discovered an old document that told approximately where the ships sank," Mel says. The document was found among

ancient papers in Spain. Excited by this new lead, Mel and his team immediately moved their entire operation 100 miles (161 km) to the west.

For nearly a year, Mel and a team of divers searched an area called "The Quicksands" near Key West. Still no treasure. The two ships had left almost no traces.

Then one summer day, diver-photographer Don Kincaid went down to photograph an old anchor. Suddenly, he saw links of a gold chain poking out of the sand. "The first chain I found was eight and a half feet (2.5 m) long," he says. He came up with the link draped across his arm and shoulder. Mel knew that at last they had found what they were looking for! It was the wreck of the *Atocha*.

Divers came across a wealth of other jewelry. Rosary beads, rings and delicate navigating instruments lay on the ocean floor, covered with sand.

They found fabulous sums of silver coins, too. "We call silver coins 'biscuits' because that's what they look like—little block sugar cookies," says Mel. The coins had corroded and fused together in a perfect square. One clump of silver coins weighed 105 pounds (47.6 kg).

History Comes to Light

Mel is also interested in what his finds can tell modern people about life long ago. He knows ►►



HUNTER

by Edith Pendleton



Above: Mel Fisher is one of the few people who hunts treasure for a living. Sometimes he flies over the site of a wreck for a better view of the work below.

Left: Members of Fisher's crew use ropes to raise a 4,000-pound cannon. It was once part of a treasure ship that sank during a fierce storm.

that plates, silverware and other everyday items can tell a lot about the life of the people on board ship. For example, a gold whistle about the size of a pencil stub may have been used by the ship's first mate.

"There were a lot of people on board who were forced to work. They came from different countries, and a lot of them didn't speak Spanish," explains Don Kincaid. "In order to give commands, the mate used a whistle. They had 24 different signals, many of them still used at sea today. The whistle had another advantage over the human voice. You could hear it despite high winds."

Mel also works with scientists called *marine archeologists*. They study the wrecks of old ships and everything that is brought up from them. If they find parts of the original ship, they take pictures of each part of its crumbling hull. The scientists map the place from the ocean bottom up, noting where each item of treasure was found. These records help people figure out how the ship sank. They also show how ships were built in the 17th century.

Great Adventure

Mel is one of only a few underwater treasure hunters at work today. "It began as a hobby," he says. "Now it's a challenge, like a great big video game. It's hard to beat the odds, but the longer you play, the better you get."

Although finding treasure is a great adventure, it can also be dangerous. Modern pirates who hear about Mel's plans may try to get there first or steal what he's already found. To protect himself, Mel files a claim to a wreck in court. When the claim is granted, he gets the rights to all treasure he finds at that spot. If other people approach his claim, Mel can call the Coast Guard for protection.

Treasure hunting can also be expensive. Once he has permission to salvage a wreck, Mel hires divers and gets special equipment. With a fleet of seven ships and a crew of 70, he can spend as much as \$7,000 a day to operate a salvage project. But it may take weeks—or years—before the first sign of gold shows up. After finding the *Atocha*, it took Mel nine more years to find the *Santa Margarita*.

To hurry the search along, Mel's divers often use metal detectors that beep in the presence of metal. But the detector may just lead the diver to an airplane wreck instead of a shipwreck. And even when divers find gold, it's not always easy to uncover it. Some treasures lie buried beneath 20 feet (6 m) of sand and mud on the ocean floor.

To dig into the sand, Mel uses a device he

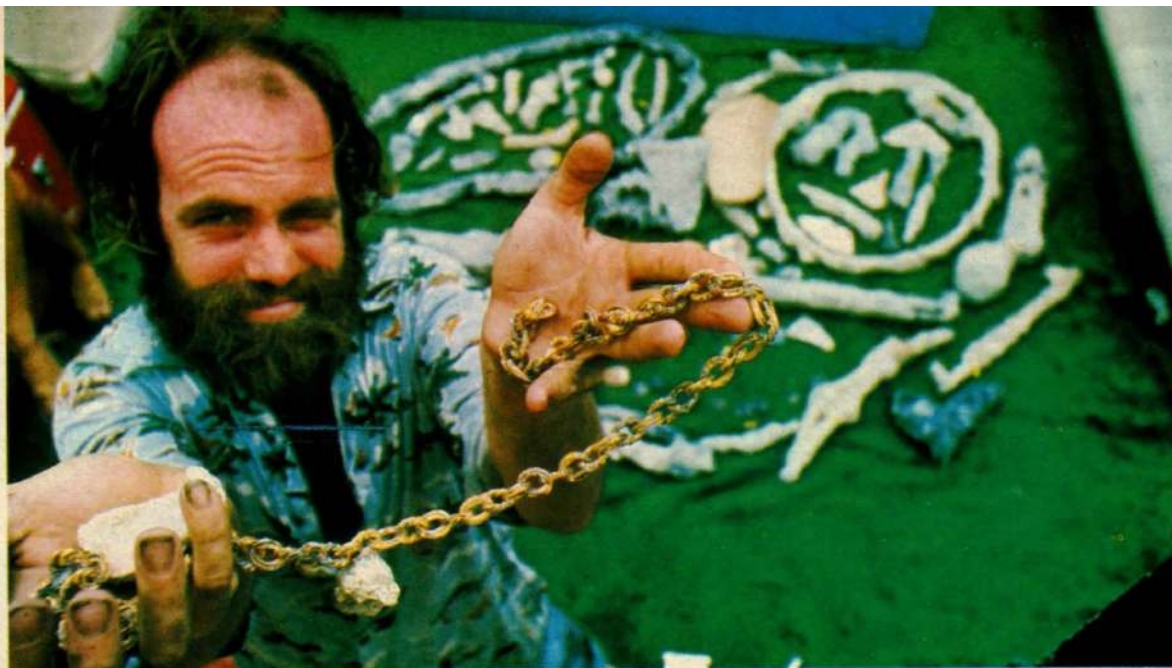


A diver removes a gold disk, a curved bar and some coins from the sands covering a sunken ship.

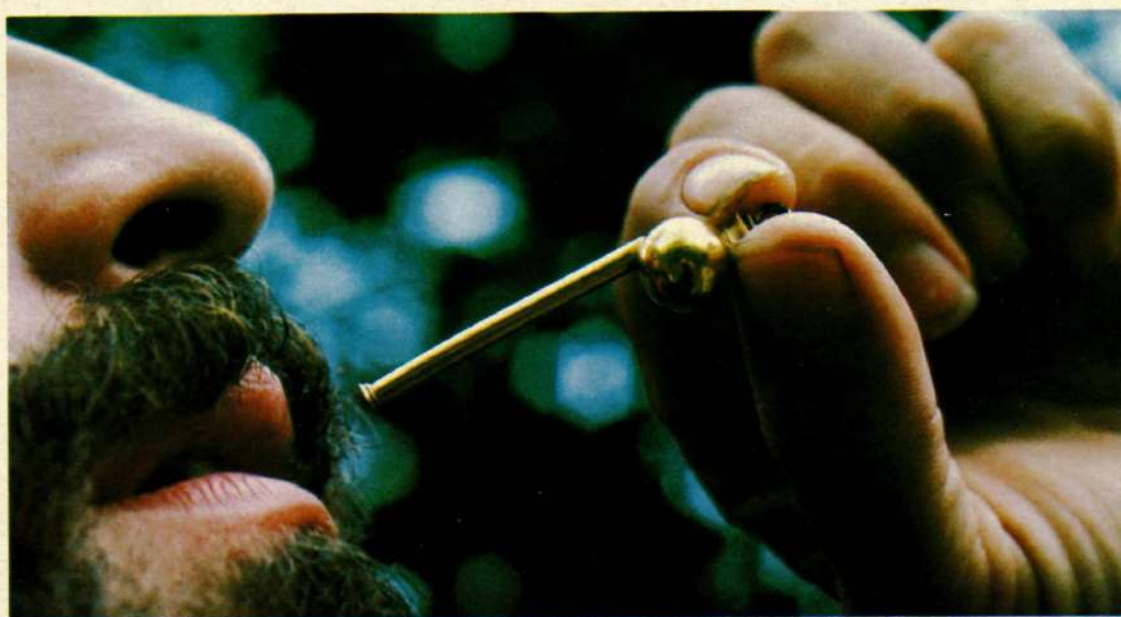
invented himself. He calls it a "mailbox," because it is an elbow-shaped tube that slants downward. It forces the wash from the boat's propeller against the ocean floor. Sand gets whisked out of the way. As craters form, divers follow along, watching the sand for signs of gold.

So far, the treasure from the *Atocha* and the *Margarita* exceeds 60 million dollars. Eventually, it will be placed in museums or sold to private collectors. For now, the treasure is on display in dozens of cities in the United States and Canada as a special exhibit.

While the treasure tours the country, Mel Fisher continues to search for more underwater riches. A thousand bars of silver from the *Atocha* still lie off the coast of Key West. And Mel hopes to find them!



Left: Yards and yards of gold chain were recovered by the treasure hunters. Rich people often carried chains like these. The links were removed and used as money.



Right: This shiny gold whistle makes a high-pitched sound. It was used on ship to signal orders to members of the crew.



Left: So far Mel Fisher has found more gold than any other living treasure hunter. These old Spanish coins were so numerous, says Fisher, that the ocean floor seemed carpeted with gold.

BURIED TREASURE

Now that you have read about a treasure hunter, it's time to do a little diving of your own. See if you can bring back the treasure in this game.

Setting Up the Board

1. Each player puts a button on one of the boats. These are the playing pieces.
2. Place one penny on each space in the center, where you see jewels. This is the treasure players will dive for.

How to Play

1. Choose who goes first. Take turns moving. Use one of two dice to move around the board.
2. Notice that the board has different paths of color. On your turn, you must stay in the same path. You can move either forward or backward on your turn, but not both.
3. So what are the sea creatures for? When you pass an animal, you may move one path closer to the center, if you want. In this way, you will get to the treasure.

Taking Treasure

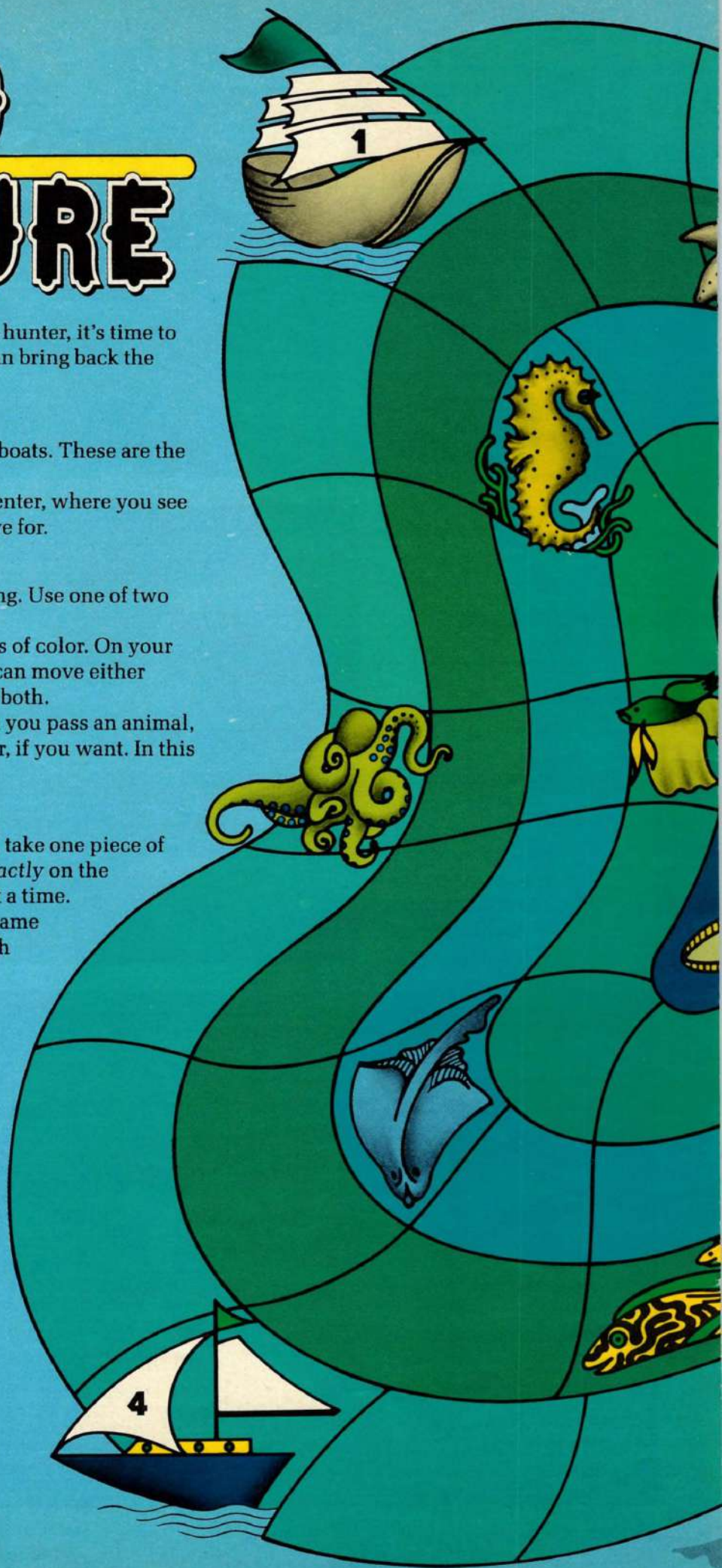
1. When you get to the center of the board, take one piece of treasure. To take a piece, you must land exactly on the treasure. You may only take one treasure at a time.
2. How do you go back to your boat? The same way you came down. Take the treasure with you. You must stay in a path of color until you pass a creature. Then you may move up one path.

Danger! Lost Treasure

1. You must get your treasure all the way back to the boat. But watch out! If you roll a one, that's bad news. Drop the treasure where you are and leave it there. Put your button back on your boat. You must begin your dive over.
2. The treasure you dropped stays where you left it. You can go back and pick it up. But so can your opponent by landing on it!

How to Win

The first person to return to the boat with one piece of treasure is the winner. You must land exactly on your boat. It sounds easy, but it's not. Why not play the game and see what we mean?





Factoids

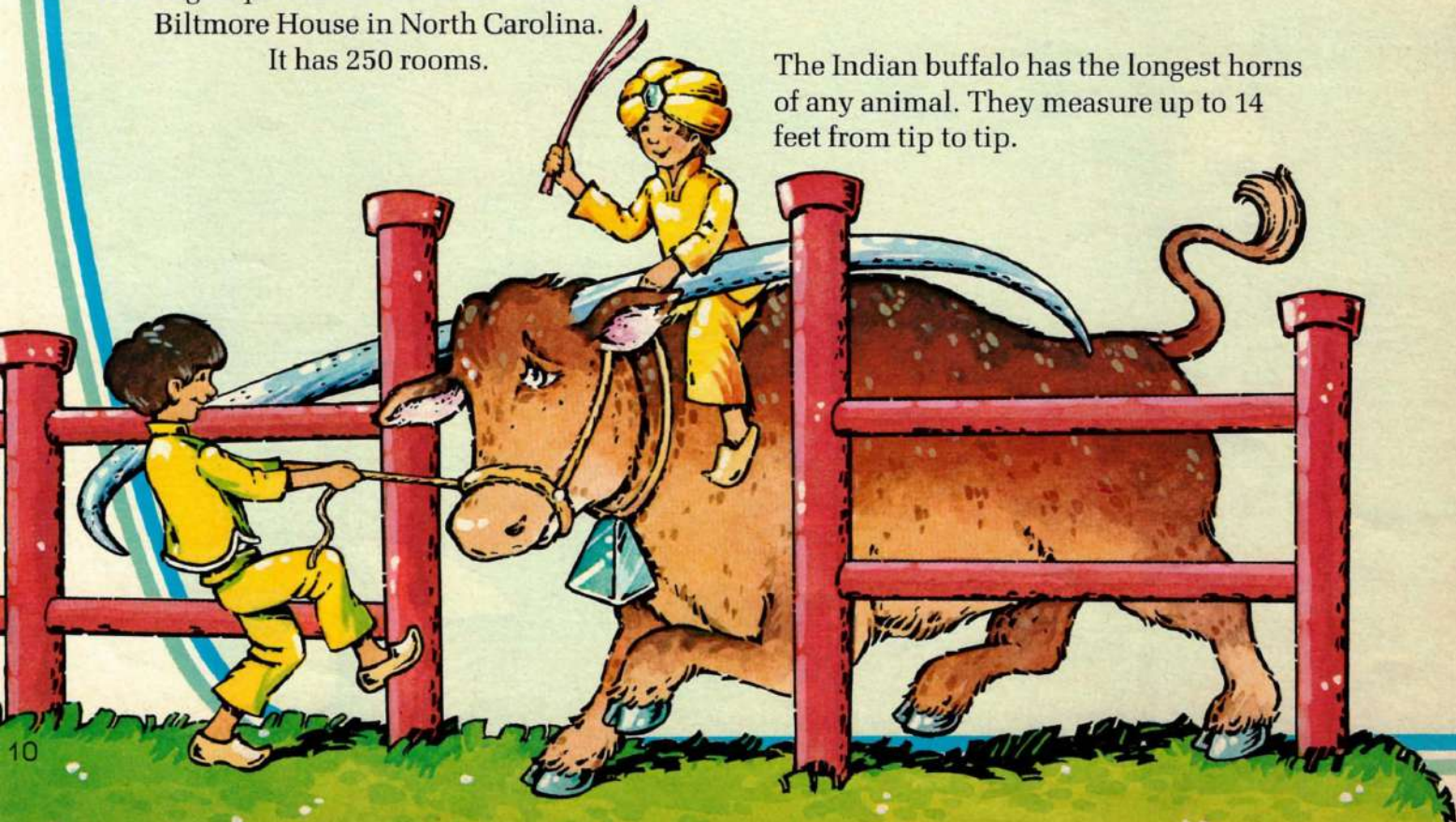


The largest private house in the world is the Biltmore House in North Carolina. It has 250 rooms.



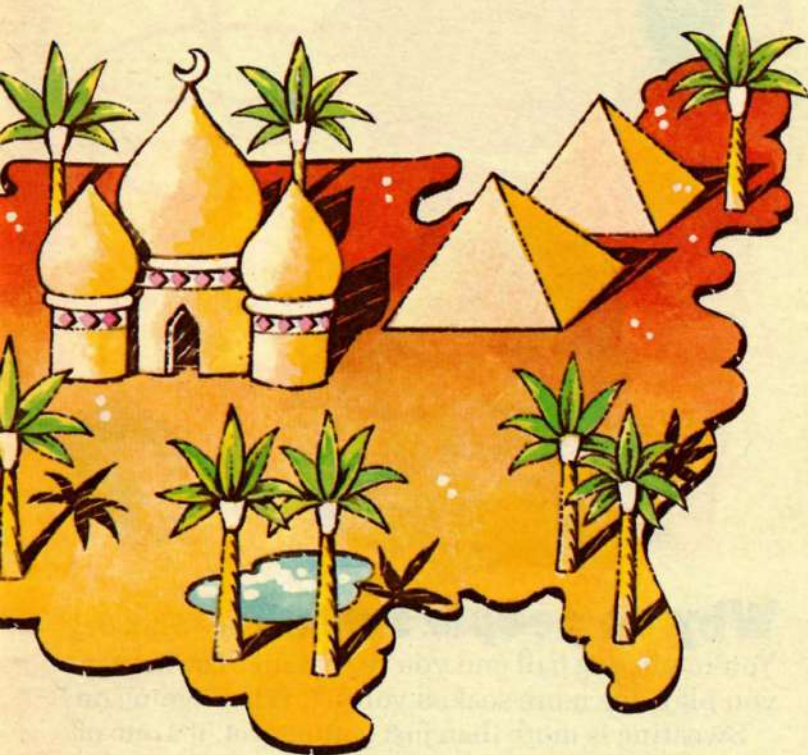
The first United States post card was issued on May 1, 1873.

The Indian buffalo has the longest horns of any animal. They measure up to 14 feet from tip to tip.





Each of your feet hits the ground about 7,000 times a day.

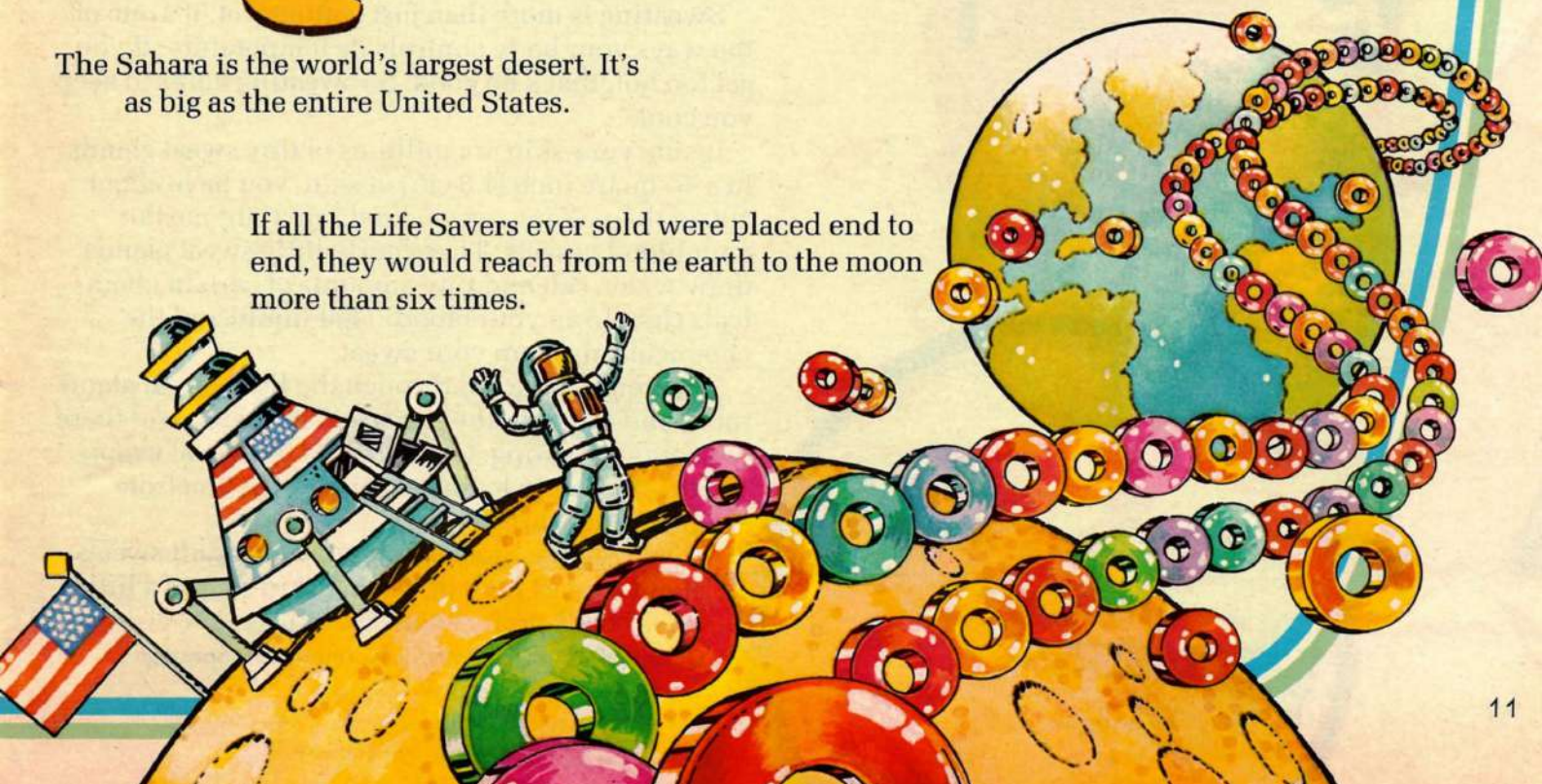


The Sahara is the world's largest desert. It's as big as the entire United States.



A common flea lives for about two and a half years.

If all the Life Savers ever sold were placed end to end, they would reach from the earth to the moon more than six times.



Any Questions?

by Susan Meyers

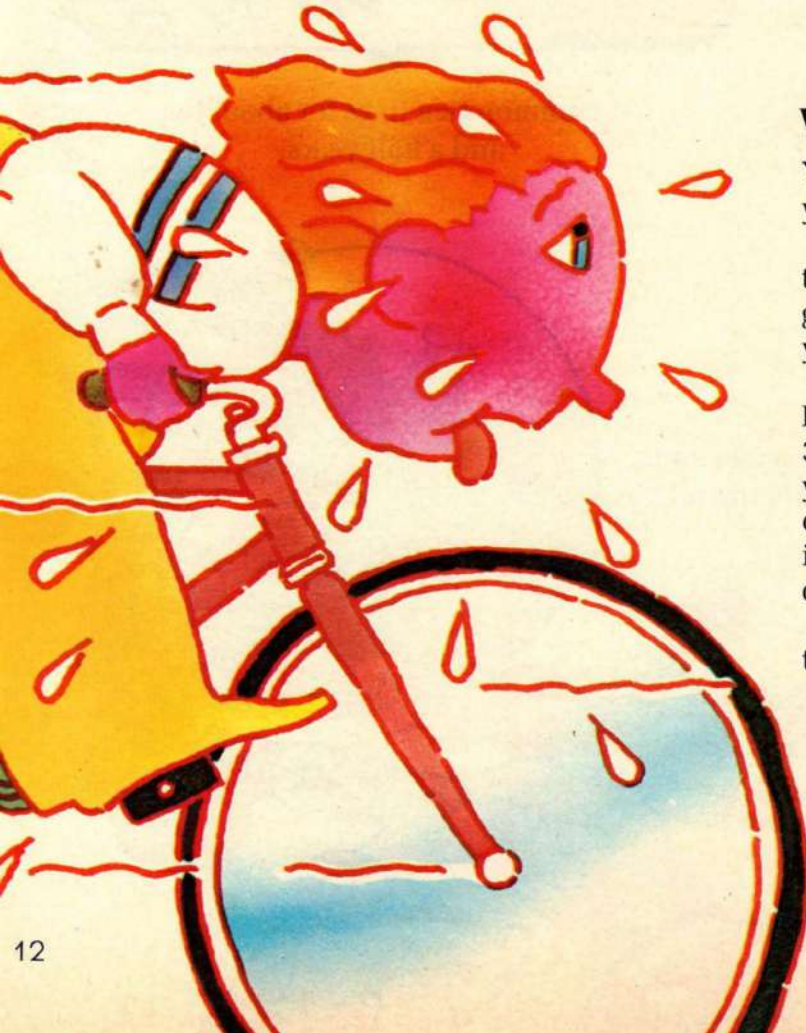
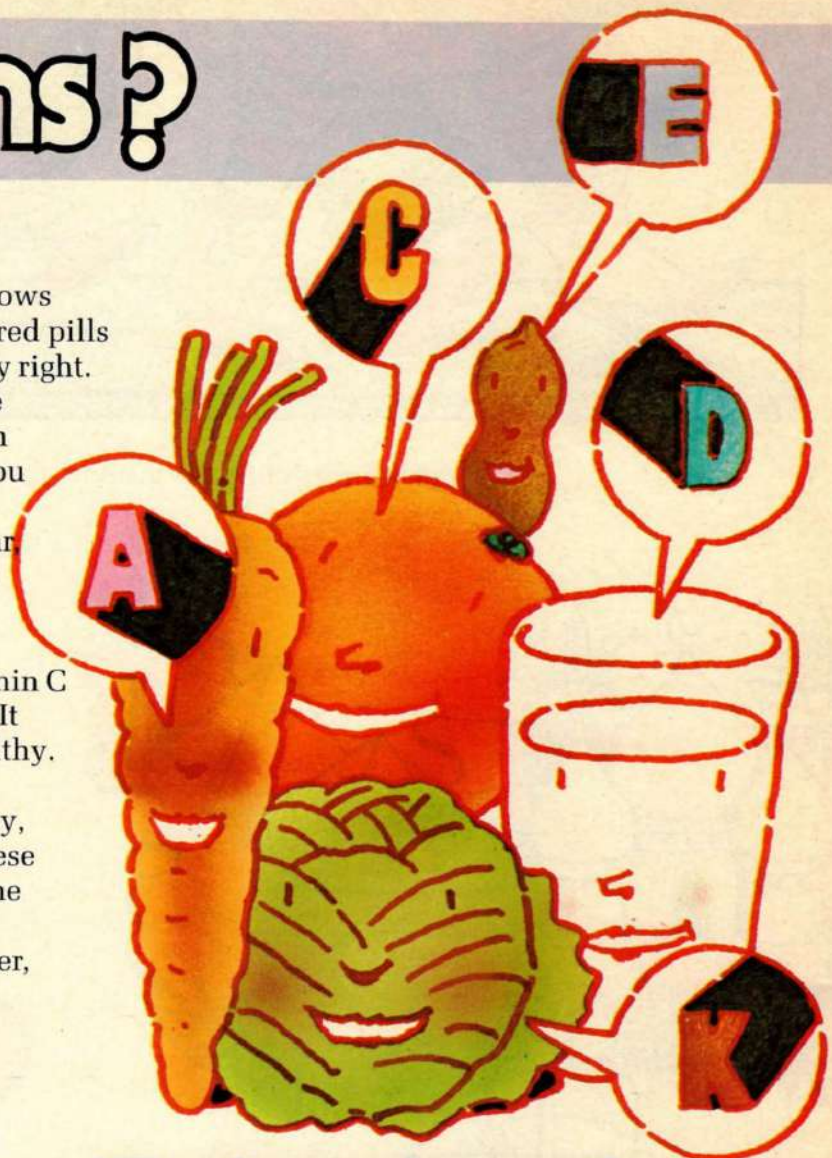
What are vitamins? Everyone knows what vitamins are. They're those brightly colored pills you buy at the supermarket. Right? Well, partly right.

Vitamins are in those pills. But that's not the only place you'll find vitamins. They're also in most food. In fact, if you eat a balanced diet, you might not need to take vitamins at all.

Vitamins help your body to work right. So far about 25 vitamins have been discovered. Each vitamin has a different job. Vitamin A, for instance, is found in carrots and other foods. It helps your eyesight, among other things. Vitamin C is found in such foods as oranges and lemons. It keeps your bones, teeth and blood vessels healthy.

Unlike other things you eat, some vitamins can't be stored by your body. So, to stay healthy, you must take in a small amount of some of these vitamins every day. Whether the vitamins come in the form of food or pills, they work just as well. All that matters is that, one way or another, your body gets all the vitamins it needs.

Question sent in by Puneet Kuman, Dumont, NJ.



Why do people sweat? It's a hot day. You're playing ball and you're soaking. The harder you play, the more soaked you get. What's going on?

Sweating is more than just getting wet. It's one of the ways your body controls its temperature. If you get too hot, that's no good. So sweating helps to keep you cool.

Inside your skin are millions of tiny sweat glands. In a $\frac{3}{4}$ square inch (1.8 cm) of skin, you have about 300 of them. Your sweat glands are right next to your blood vessels. These curly little sweat glands draw water, salt and tiny amounts of certain chemicals right from your blood. That liquid and the chemicals make up your sweat.

The liquid is forced through the little sweat gland tubes and out onto the surface of the skin. And there you are—sweating. On your skin the sweat evaporates. The body loses heat and keeps you from getting too warm.

On a regular, hot summer day, an adult sweats about a quart (.9 l) of water. A kid sweats a little less. That's pretty cool!

Question sent in by Michelle Normandeau, Saratoga Springs, NY.

Do you have a question that no one seems able to answer? Why not ask us? Send your question, along with your name, address, and age, to:

Any Questions?
3-2-1 CONTACT
P.O. Box 599
Ridgefield, NJ 07657

What is daylight saving time?

Daylight saving time is just what the name says. It's a way of saving daylight and using it when you need it most. It doesn't change the length of the days. But by resetting your clock, you are awake for the most daylight hours possible.

The idea for daylight saving time began in 1907. William Willett, an Englishman, came up with the idea. He knew that as summer comes, the days grow longer because of the way the earth tilts toward the sun.

If clocks were kept the same in summer as in winter, you'd sleep long after the sun rises. But by turning the clock forward in spring, you wake up soon after sunrise. And when you go to sleep, it's around sunset time. You make the best use of the sunshine all day long.

When fall comes, the days get shorter. So it's time to turn the clocks back to where they were before spring. It's simple—spring ahead and fall back!

Question sent in by Dottie Klugel, Chincoteague, VA.

When scientists find dinosaur bones, how do they fit them together?

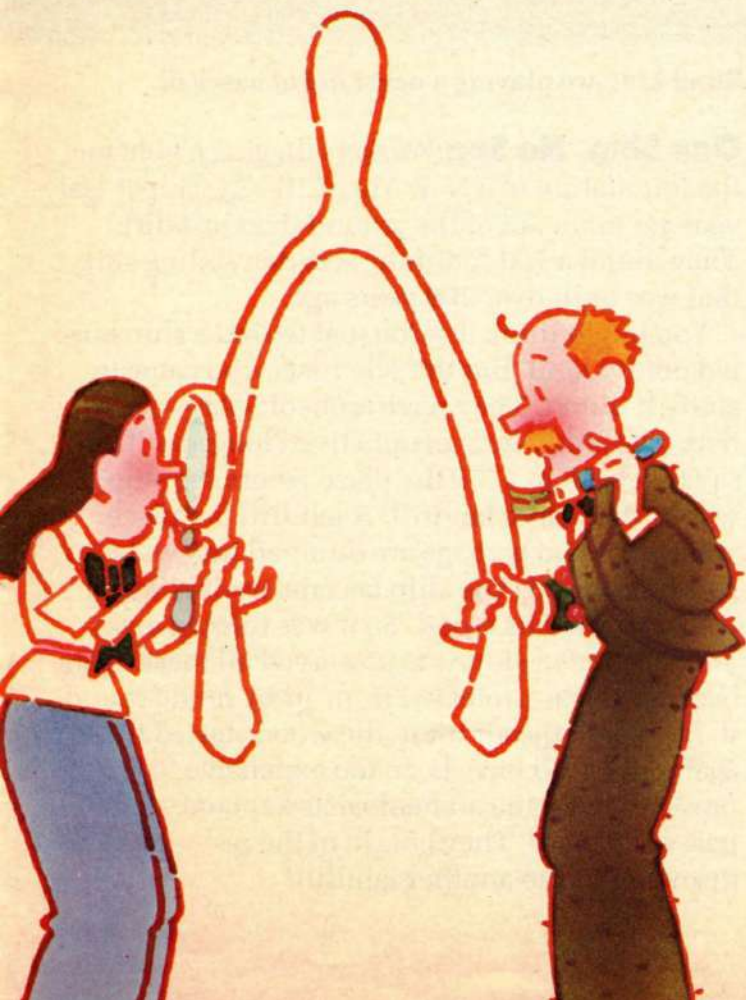
Putting dinosaur bones together is a little like doing a jigsaw puzzle: You have to make all the pieces fit. But, unlike a jigsaw puzzle, you can't look on the box to see if you're doing it right!

Sometimes when dinosaur bones are found, they are in the same position as when the animal died. In that case, scientists draw, photograph and label the bones. Later, they will put the bones together again in the right order.

But sometimes the bones are jumbled. Then things get trickier. One approach is to compare the bones to those of dinosaurs which were dug up before. In this way, scientists can figure out which bone is which and what dinosaur it belongs to.

But nothing is foolproof. When a scientist named O.C. Marsh put together a brontosaurus over 100 years ago, he goofed. He gave it the head from a different dinosaur. Many other scientists, using this model, copied the error. A few years ago, two scientists discovered the mistake. Soon brontos all over the world were getting head lifts!

Question sent in by Maria Troncone, Eastchester, NY.



Contact Report

by Judy Gordon

Deep Baseball Imagine trying to hit a baseball when you can't even see it. Or running to first base when you don't even know where it is. Blind children who wanted to play baseball had these very same problems—until engineer Ralph Rock came up with Beep Baseball.

In Beep Baseball, there are the same amount of players as in regular baseball. The object is still to hit the ball and get to base safely. But the trick is, the baseball and the bases beep loudly so blind players can tell where they are.

Of course, getting a hit in Beep Baseball isn't easy. "If you don't think it's hard, try hitting a softball with a blindfold on," says Ralph. But blind kids still find it fun. Since the first game was played in April 1972, Beep Baseball has been a big hit.

Right now, about 30 beeping baseballs are made each week. And more blind kids are getting the chance to "play ball!"

Story suggested by Mary Messano, San Jose, CA.



Blind kids are playing a new kind of baseball.

One Ship, No Sea Workers digging a hole for the foundation of a New York City skyscraper last year got more out of the ground than just dirt. They found a 100-foot-long wooden sailing ship that was built over 200 years ago.

You might think it's unusual to find a ship buried on dry land. But the scientists who came to study it didn't. They were archeologists—scientists who study how people lived long ago. They say that back in 1750 the place where the ship was buried was a landfill. A landfill is a place where dirt and garbage are dumped into water to make new land. The ship became useless when worms ruined its wood. So it was thrown away.

The wooden ship was preserved all these years because it was protected from air by mud around it. But when the air hit it, the wood started to rot again. It would have been too expensive to preserve it. So the archeologists kept only one part of the ship. They got rid of the rest—by throwing it into another landfill!



An old ship was found buried in New York City.

Contact Report

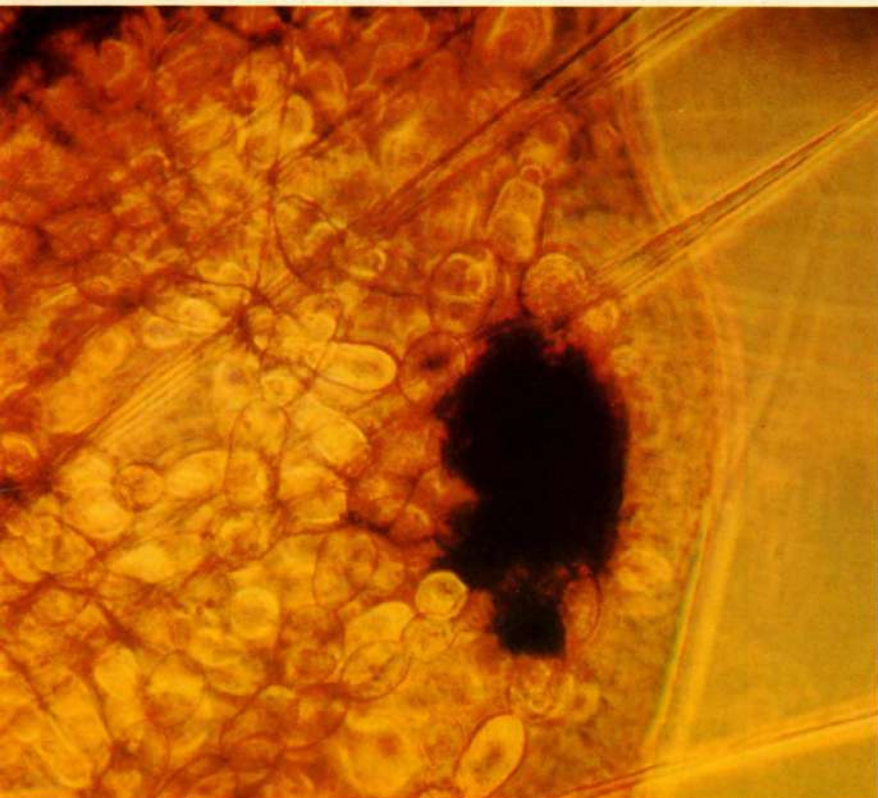
Voice Choice Soon you may be able to phone home without lifting a finger. Scientists at New Jersey's Bell Labs are now testing a new telephone that dials numbers automatically when you tell it to.

To train the telephone dialer, people's names and numbers are repeated over and over into it. That information is stored in a computer memory. Then, when you want to use the telephone, all you have to do is say the name of the person you want to call. The machine dials automatically. When the conversation is over, you say, "Hang up." The telephone clicks off, and that's it!

Lawrence Rabiner, one of the people working on the new telephone dialer, says the gadget can only remember ten names and numbers now. Someday it will be able to recognize thousands. But hold on. Don't even think about rushing out and buying one of these fancy new phones. Right now, they're still just experimental. But one day, instead of letting your fingers do the walking, you might just let your voice do the talking!



With this gadget, phones dial themselves.



The dark fungus will gobble up the baby mosquito.

Put the Bite on Bugs Mosquitoes can be pesty little creatures. But if biologist Jim Kerwin has his way, people may soon be putting the bite on these annoying bugs.

That bite will come from a tiny organism called a fungus. Dr. Kerwin has developed a special fungus that lives in water just like baby mosquitoes. The fungus works its way inside the baby bugs. After three days, the bugs' insides are all eaten up.

Mosquitoes are often killed by chemicals that harm people and other animals. But spraying the fungus on fields and water won't harm life—unless it's mosquito life.

Story suggested by John Long, Dayton, OH.

What's That? Have you read about a kid who invented something new? Or one who set a new science record? Then cut out the story and send it to us. If we use it, you'll get a CONTACT T-shirt. Include your name, address, T-shirt size and the name of the publication the story came from.

Write to: **The Contact Report**
P.O. Box 599
Ridgefield, NJ 07657



Summer Collector

by Pat Berry

Did you ever know anyone who had so much junk they didn't know what to do with it all? Clarence A. Browne was just such a person. By the age of 51, Clarence had collected 750,000 records. But that wasn't all. His house was full of old newspapers, empty soda bottles and old blankets in piles. Clarence had so much junk, he could barely move around his house.

Clarence was not what you would call a collector. A real collector keeps only things that are special. They might be

pretty, or worth a lot of money, or very rare. The collector may even like a piece for no particular reason at all.

Collections are a great way to show your interest in something. If you love the shore, for instance, you can start a seashell collection. Or if you have a passion for postcards, chances are you have the beginnings of a collection already. You can also collect things like seeds from the foods you eat or odds and ends from a favorite summer.

So if you're hunting for a project to keep you busy this summer, hunt no further. Be a collector!

The Great Outdoors

Beaches and woods are great places for collecting. If you are headed toward either one soon, here are a few things to look for.

At the Beach Be sure to bring a pail, a sturdy stick for digging and a sharp eye for your next trip to the shore. You probably already have some shells from an earlier trip. That's a great start. But there are lots of other things to look for. You might collect shoreline flowers or plants, for example.

Harder to find and therefore more special is driftwood. These planks or branches from a tree have spent some time floating around in the ocean. Salt water wears away parts of the wood. The result is wood in unusual and pretty shapes. Driftwood sometimes washes up on the beach after a storm. Some pieces are too big to carry. But





Back Home Once you've started your collection you'll want a neat way to show it off. An empty shelf in your room is a good display case for shells and sand. Another possibility is arranging your collection on a piece of driftwood.

Put sand in small clear jars. Polish shells with a little baby oil to make them shine.

Arrange your collection any way you like. Write on little cards the name of each item and where you found it, and place the card next to each piece. The library will probably have books to help you identify the parts of your collection.

Press flowers in a heavy book with paper towels on both sides to absorb moisture. To make a flower poster, tape each pressed blossom on a large piece of poster board. Write its name underneath. You could also make a flower journal. Tape each pressed flower on one page of a composition book. Write its name, where you found it, and whatever else you might want to say about the flower on the facing page. ➡

the smaller ones are worth the search.

Some of the best beach collections are the easiest things to find. Take sand, for instance. If you visit a lot of beaches, you'll notice sand can be very different. Sand can be brown, white or even pink. Sometimes the grains are large and rough, other times small and smooth. Bring a small jar of sand home with you every time you go to a different beach. You'll be amazed at how many different kinds you'll have.

Woodland Trails Hiking in the woods near your house or even in your own backyard? Bring along your digging stick and a basket or backpack. You'll probably find lots of wildflowers and, near the end of summer, fallen leaves. These make great collectibles.





Rainy Days

Sometimes it seems like it only rains when you're on vacation. But that doesn't mean you have to drop everything. Here are some rainy day collections.

Make a Time Capsule People make time capsules to help future generations understand history a little better. A time capsule is a container filled with things that represent a time period. The capsule is dated and marked with the year it should be opened, usually thousands of years later.

You can make your own time capsule, but you don't have to wait thousands of years to open it. With a friend make a list of small objects that are important to you or tell something about this summer. See if you have a photo of you and your friend together, souvenirs from a field trip you both took, labels from the packages of things you like to eat, a newspaper article about something you share an interest in. Round everything up. You might also want to write each other notes to include in the package.

Next you'll need a good capsule. Everything should fit into a shoe box or small carton. If you are going to bury your capsule, put it in a large plastic bag for extra protection. And don't forget to make a map or you'll forget where you buried it! If you

want to open it in winter, don't bury it. The ground may freeze. Instead, "bury" your capsule in the basement, attic or the back of a closet.


Mark your capsule with your names, the date you're burying it and the date you plan to open it. How about the last day of summer or your birthday? You may want to wait only a few weeks and that's okay, too. But the longer you wait, the more fun you'll have opening it.

Eat and Plant Next time you bite into an orange or cut open a tomato, save the seeds. Collecting seeds from the food you eat and planting them can lead to another whole collection: green plants for your bedroom.

Fruits and vegetables that grow in tropical climates will grow very well. Lemon, grapefruit, orange, avocado, cucumber, squash, green pepper and melon seeds should all grow quite nicely. You'll need some pots, potting soil and sand.

Combine two parts soil to one part sand in the pots. Seeds with hard coats like citrus fruits should be soaked in lukewarm water for two hours before planting. Make sure seeds are clean of pulp or else mold will form around them. Plant about five seeds of the same variety in each pot about half an inch deep. Don't plant them on top of each other. And make sure you put a label on each pot telling what





you've planted there. After they start sprouting, thin out the growth by cutting the less healthy shoots. Later you will want to thin to one or two strong sprouts.

When planting large seeds like avocados, keep the pointed half of the seed above the surface, and plant only one seed per pot.

On the Road

Leaving town for a family vacation? Take a new hobby with you on the road and you'll have a new way to enjoy the trip.

Picture This While traveling you can collect postcards. Look for one with a special theme like an animal you like or a land formation like mountains or prairies. You could collect trick photography cards. How else might you own a picture of a cowboy riding a giant jackrabbit?

Store your cards in a photo album. You can even frame your favorites. Have your friends add to your collection by asking them to write you on the kind of postcard you collect.

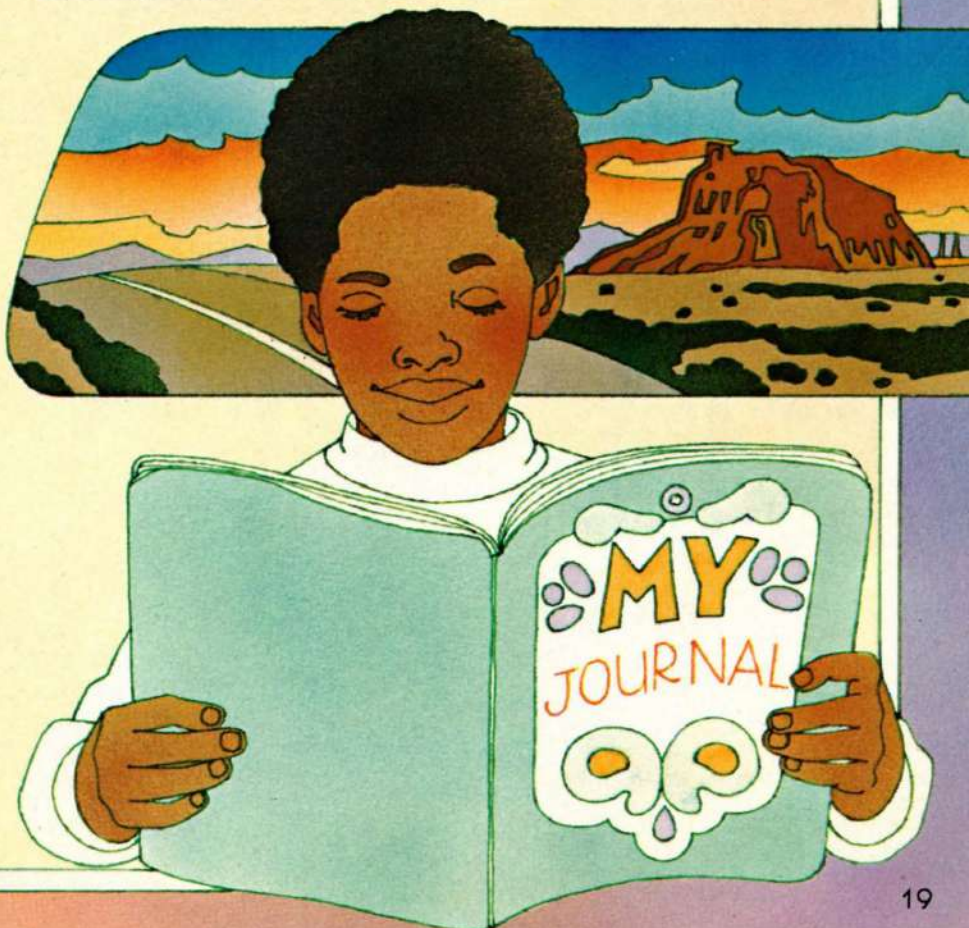
Road Notes Keep a journal—a written collection—of the sights and sounds of your trip. Write down things you observe. Also describe sunsets and sunrises (if you can get up that early).

Write down any unusual patterns in the sky at night and during the day. Your journal will be fun to read at the end of your trip. Later you can add photographs taken while traveling.

Collecting your thoughts doesn't have to start or stop while you're on vacation. Some people keep journals all their lives. This summer is as good a time for you to start one as any!

Has the collecting bug bitten you? Tell us about it. What are you collecting and how are you showing off your new (or old) hobby? Write to us at:

Summer Collector
3-2-1 CONTACT
P. O. Box 599
Ridgefield, NJ 07657



reetings from



HOLD ON TO YOUR HAT!



George Ferris
built this
giant wheel
for the world's
fair about 90
years ago.

GREAT AMUSEMENT PARK RIDES

by Nora Zamichow

An amusement park without kids? Impossible, you say! But true. The first amusement parks were made for adults. Some 300 years ago in Europe, they were called pleasure gardens. At first, these gardens had only music, sports and food. There were no rides at all. Compared to today's parks, these gardens were pretty tame.

Amusement parks didn't really catch on in America until about 100 years ago. It all began with a fight between the streetcar companies and the electric power companies. The streetcar firms had to pay a set monthly fee to the electric businesses. It didn't matter how much electricity or how little the streetcars used. Since people stayed home on weekends, streetcars hardly used any electricity then. But their owners had to pay for the current anyway.

That's why they started building small amusement parks at the end of streetcar lines. These parks lured people out of their homes on weekends. So the streetcar companies got the fares from amusement parks and streetcars. The electricity they used didn't cost a penny extra.

These early amusement parks were built around a single ride like the ferris wheel or carousel. But they soon added more rides. Amusement parks, then and now, had to steadily improve to keep visitors coming back.

Today's parks are bigger and better than ever. Some have exciting new rides like the river rapids and the freefall. And even the older rides such as ferris wheels often have new twists to keep them exciting. So get ready for a glimpse of some of today's top rides.

Bored with the view from the ground? Try the Skywhirl! It's the world's first triple arm ferris wheel. The Skywhirl spins along at Marriott's Great America in Santa Clara, California.

Each of its three arms has its own ferris wheel. Using these arms, the Skywhirl has a unique system of loading passengers. One arm lowers an entire wheel so it rests on the ground. Everyone enters the 12 cabins at once.

While that wheel is being loaded, the other two twirl 115 feet (35 m) off the ground. As soon as everyone is on, the first wheel rises into the air. Each wheel makes 75 turns. For a moment, all three wheels are in the air. Then the second wheel comes down to unload its passengers.

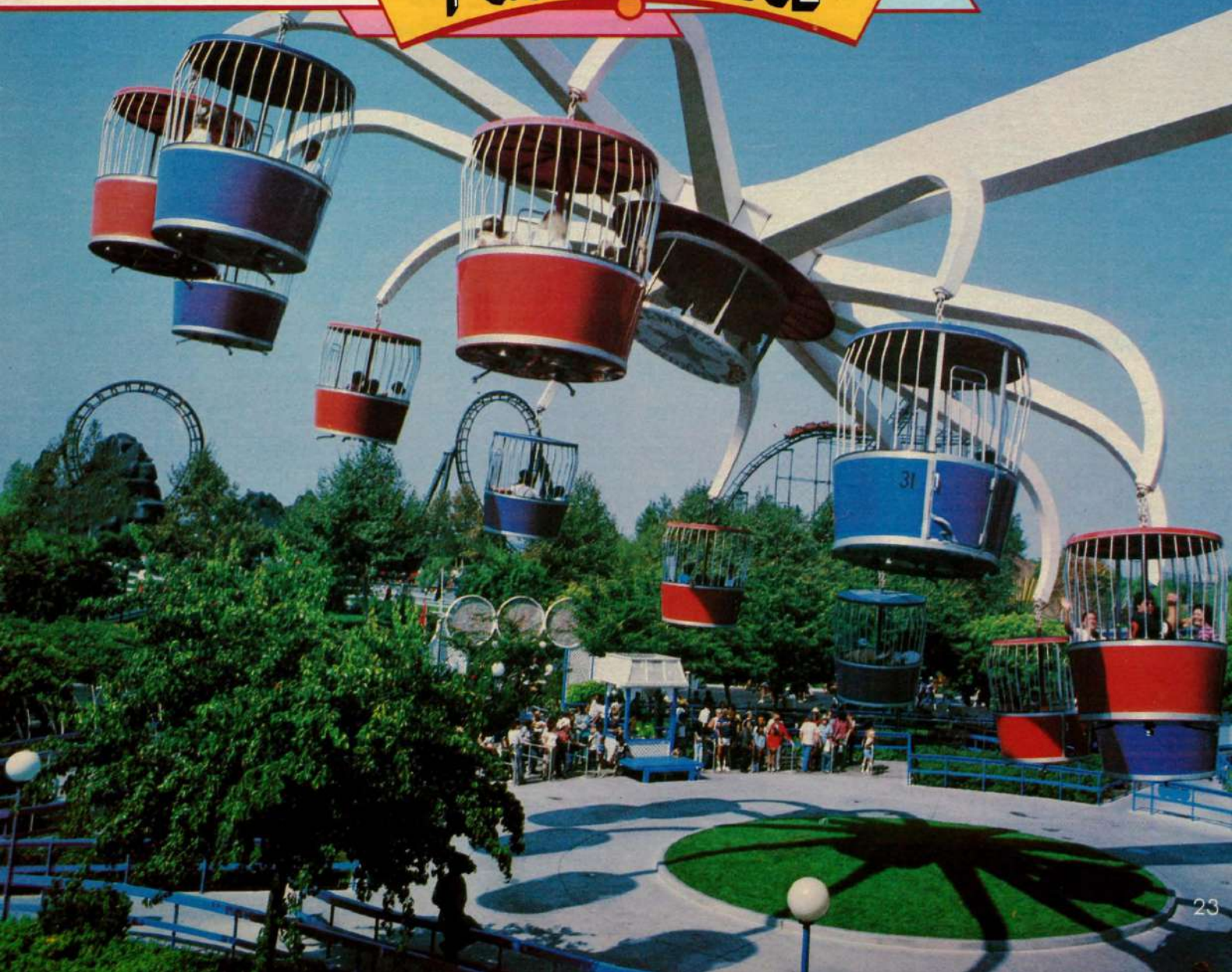
Don't eat lunch just before you get on the Skywhirl. The motion of this ride can really get to

you. You'll feel like you're riding a small boat up and down on a huge wave. Actually, you'll be safe, though. Every day, there's a long inspection to make sure all the parts are working perfectly.

The Skywhirl's eight-to-ten-minute ride is today's longest ferris wheel spin. But compared to early wheels, it's an express. The first big one took over 20 minutes to go around one time. It was built by George Ferris in 1893 for the World's Fair in Chicago. The luckiest riders got on first and waited an hour as the wheel loaded. Then the ride of two non-stop rotations would begin.

Ferris's first wheel was 264 feet (80 m) tall. Each cabin was the size of a streetcar and held 60 people. Today, the largest ferris wheel is in Japan. But it's more than 50 feet (15 m) smaller than George's original model. ➡

FERRIS WHEEL



As he watched canoes race through white water rapids at the 1972 Olympics, Bill Crandall had an idea. This amusement park executive decided to have an artificial white water river made for a ride. Bill drew a picture on the nearest thing at hand—a napkin. He presented his idea to a producer of rides. Bill's idea was a hit. About ten amusement parks now have river rapids. And more are coming.

The river rapids are the world's wettest rides. "You'll get wet and maybe even soaked," says Joseph Fincher, manager of The Dark Continent in Tampa, Florida. There, each raft swirls down a long water course called the Congo River Rapids. During this ride, a raft will carry you and 11 other people as you spin in the current, shoot through

rapids and float inside a cave.

You can't help being surprised by the five geysers, springs that suddenly shoot water straight up into the air. Each raft trip is different. There is no track or chute guiding the round raft as there is on another wet ride, the log flume. You just hang on while your raft is carried along by water currents, waves and gravity.

The currents come from two huge pumps which move 170,000 gallons (643,450 l) of water a minute. Two smaller pumps also push water against logs on the river bottom. This creates the white water rapids. They swirl your raft along at speeds up to 15 miles (24 km) per hour. And to make sure you float down the river, the starting point is several feet higher than the finish.

WHITE WATER RAPIDS





ROLLER COASTER

"Everyone thinks of a beast as a large, frightening animal," says William Price, manager of King's Island Amusement Park in Ohio. But to many ride fans, the beast can only mean a wonderfully scary roller coaster.

The Beast is the longest wooden roller coaster in the world. The 7,400-foot (2,254-m) track goes over 35 acres of land. But you'll have no time for sightseeing. This is one of the fastest wooden roller coasters. It goes up to 70 miles (112 km) per hour.

Roller coasters like the Beast are designed to make you feel like you're going even faster than you are. The lower the car is to the track, the faster you seem to be going. Railings and posts flash by to add to your feeling of speed. And zooming in and out of the Beast's four tunnels also helps you feel like you're speeding along.

Suspense is important, too. Before you plunge down the Beast's third drop of 141 feet (42 m), a chain underneath the track slowly pulls cars

uphill. Towards the top, the cars slow almost to a stop. Then, whee! Waiting made the drop that much more exciting.

Even though you sit for the whole Beastly ride, the sensations of sitting will change. As you plunge down the Beast's drops, your body travels as quickly as the coaster car. So you no longer feel the car seat. You may feel weightless.

Then after the drop, you may feel very heavy. You're no longer traveling as fast as the car seat. So now the seat pushes you along. For about one second, you might feel about three times heavier than usual.

Part of the thrill of riding roller coasters comes from these sensations of being heavier and lighter than usual. Even for experienced Beast riders like Carl Eichelman, the thrill doesn't disappear. Carl, a computer operator, set a record by going on this ride more than 3,000 times. His goal is 10,000 rides. "Maybe than I'll quit," he says. But no promises! ➡

Ready for the ultimate thrill? Try one of the newest rides, the Cliffhanger! This is the world's first real freefall ride. It's now in its third season at Six Flags over Texas in Arlington, Texas. The Cliffhanger lifts passengers up in a car 128 feet (39 m) straight into the air. Then it drops their car down a track! "It's like stepping off the top of a ten-story building," says Ray Williams, manager of Six Flags.

Beneath the L-shaped tower, you are one of four people being strapped into a car. Then one at a time, these cars zip up the tower in ten seconds. That's much faster than the speed of a normal elevator. Since the cars are open, you can see the entire park. But not for long!

The car moves to the front edge of the tower. It pauses for five seconds. Then, whoosh! It falls 87 feet (26 m) straight down.

Near the bottom of the huge drop, the track curves. As the car enters the curve, it shifts. You are no longer riding upright. Instead, you are lying on your back looking up at the sky. Then a computer-controlled braking system gradually stops the car before it runs out of track.

At the end, the car is lowered and turned upright again. Can you believe that only 20 seconds have passed since your car went up the tower? This is one fast ride!

To keep the freefall ride safe, there are two computers. They are connected to 103 electronic sensors. These devices provide information about the speed and location of the dropping car. Computers then adjust the braking system for each car. Before a car drops, computers measure the exact thickness of the brake pads. If the computers find a potential problem, they stop the ride. They also make sure the cars never get too close to each other.

First to ride the Cliffhanger was Hollywood stuntman Dar Robinson. Dar advises riding it with your eyes open. He says, "It might be more exciting with your eyes closed, but I didn't try it!"



When you think of a carousel, do you ever think of riding another animal besides a horse? How about an ostrich? You can do just that if you go on the double-decker Columbia carousel at Marriott's Great America in Gurnee, Illinois. It is the largest, most expensive carousel ever built.

You could ride almost any animal from a giraffe to a pig. There are 103 different figures that gallop around and around. Of course, a carousel wouldn't seem like a carousel without horses. So take your pick from lots of big beauties.

The Columbia is like a hall of fame for carousel animals. All of them are fiberglass copies of famous carousel figures. The best-known is the Silver Anniversary Horse. A platform lifts this big silver horse higher than the rest. The original was made years ago to celebrate the 25th anniversary of a carousel company.

Once there were as many as 10,000 carousels in

the United States. Today, only 280 still work. People like Rich Wickens, president of the National Carousel Association, are trying to save these survivors. He says, "You can't beat a good carousel ride!"

Carousels are probably the oldest amusement ride that's still around. They began as crude wooden horses about 300 years ago. To practice for tournaments, young noblemen rode them and tried to spear a ring with their lances. Back then, a man pushed the carousel frame to make it go around. Later, horses and mules took over that job. Now, of course, carousels have motors to keep them turning.

Carousels like the Columbia are more comfortable today for both operators and riders. Ask riders like Gary Mandau, Chris Lyons and Dana Dover from Portland, Oregon. They rode a carousel non-stop for 312 hours and 40 minutes!

CAROUSEL



The Bloodhound Gang



The Case of the Puzzled Pot Hunter

Part One

by Dill McCay

Ricardo burst into the office of the Bloodhound Detective Agency. "We don't have any big work coming up, do we?" he asked Vikki and Zack.

"No, this looks like a slow week," Vikki answered.

"Then maybe the Bloodhound Gang can take a short field trip," Ricardo said excitedly. "How would you like to go out and dig up a little history?"

"What do you mean?" Zack said.

"Archeology," Ricardo smiled. "The science of digging up things left by folks in the past."

"I always read about it in Egypt, or down in South America," Zack said. "You're telling me it's happening around here?"

"Up in Torringtown. My friend Mr. Potter has spent years digging up traces left behind by local Indians. Now he's been asked to check out a building site before somebody puts up a shopping mall."

"The Riverside Mall?" Vikki asked.

"That's it," Ricardo said. "You know about it?"

"It's in the newspaper," she said. "A group of Indians is suing to have the construction stopped. They say the mall site belongs to the Compaunoags."

"Well, that doesn't concern Mr. Potter. The Indians he's interested in left the area at least a hundred years ago."

So, the next day, the Gang found themselves standing in an empty field with about 20 other people, waiting for Mr. Potter. On the hill above them, a yellow bulldozer roared along, shoving a huge pile of dirt. Big red letters covered the side of the machine: CRANE CONSTRUCTION COMPANY. "Those are the people who are building the mall—and having that lawsuit with the Indians," Vikki said.

At that moment, Mr. Potter came skidding down the hill. "Come on up," he called. "The construction company has agreed to loan us some equipment."

They climbed the steep hill, to find a brawny man standing by a pile of shovels and other digging tools. Beside him stood a woman in jeans and a work shirt. Both of them wore bright yellow hard hats, but hers had a big, red number one. "I'm Nora Crane," the woman said. "The Crane in Crane Construction. Thanks for coming. I think it's a great

idea to check this area for anything historically important before we get started."

"Waste of time, if you ask me," the man said.

"That's Nick Smoot," Nora said smiling. "He's my superintendent. He just worries that something will hold up his construction schedule."

"You wanna dig?" said Smoot. "I'll help you dig. I'll send a couple of bulldozers down there!"

Digging for Clues

Mr. Potter came rushing up. "That's not the way an archeologist does it. The clues we're looking for are easily broken—clay pots, or pieces of them, places where campfires were....Traces like these have been hidden in the ground for hundreds of years. You can't just shove dirt around. You have to dig carefully, sometimes remove the dirt with one of these...." He pulled an artist's paint brush out of his pocket.

"Nick is only joking," Nora said. "Take your shovels..." She bent over a box at her feet. "...And take these, too—for safety." She took a yellow hard hat out of the box, and plopped it on Zack's head. It said CRANE CONSTRUCTION in red letters. "Hang onto those hats," she said. "You'll need them each time you go to the dig."

"Nice publicity gimmick," Vikki whispered to Ricardo as Nick Smoot handed them their hats. Taped on each hat were initials for each gang member.

From the distance, they heard shouting. "I told those Indians to keep off this land," Smoot said.

A young American Indian came up. "And we told you to keep off our land."

Smoot frowned. "Look, Thomas, I read what you said in the newspaper today...."

"The name's Charlie Tomah. That was what everyone called me when I worked construction." He turned to Nora Crane. "Now what are you pulling with this 'historical dig' routine?" He grabbed Ricardo's hard hat. "You're even dragging these kids into the act. You got Potter to work for you with a few shovels, but that doesn't hide the fact that he's an amateur. He has no real training."

Potter took the hat from Tomah and gave it back to Ricardo. "I resent that," he said. "Some great finds in archeology were made by so-called amateurs. What about Edward Herbert Thompson? He discovered ancient temples in Mexico."

"Didn't he learn from professionals?" Tomah said.

"I've learned from them too—never to do any-

thing with them. I went to talk to a big-shot professional archeologist once. He wouldn't even listen to me. Said amateurs mess up his business—digging for souvenirs instead of keeping all the clues in a site. He called me a pothunter. Well, I'll show them! On this dig, my crew will do as well as any pros." He started down the hill.

"This is Compaunoag land," Tomah shouted after him. "And we have a treaty that proves it."

"This was Silas Sales' farm. He got the land 120 years ago. And the Compaunoags didn't complain. Instead, they went away," Smoot said.

"Back then, if an Indian complained about people stealing his land, he got shot," Tomah said.

"Look, I worked with Nora's dad when we were both just shovel jockeys. I helped her get this company started, and I got that new building done at White Ridge for her. So, you ain't gonna ruin her work, Tomah." Smoot squared off for a fight. Just then, a worker came running up. "Mr. Smoot! A bulldozer won't run! We can't find the starting key."

Smoot turned away. "I'll fix it." He turned back. "Then I'll fix you. And I'll fix that stupid, time-wasting dig, too!" He stomped off.

Nora Crane shook her head. "He means well, but he's a gruff old so-and-so. He's a top-notch builder, though—got my White Ridge project done in record time—and saved a lot of money."

"Isn't that all you're interested in, Ms. Crane?" Tomah said. "Saving money—stealing our land?"

"I bought this land from the Sales family," Nora said. "We'll see what the court says about your treaty."

"But your big ground-breaking ceremony is in two days." Tomah spun around and left.

Vikki and Ricardo headed down to the dig.

"Where's Zack?" Vikki said.

"Went to look at the bulldozer," Ricardo said.

Finding Some Surprises

Soon Mr. Potter was driving wooden stakes into the ground and running pieces of string between them. "These strings will mark off squares of land, like a checkerboard. Each person will be responsible for one square. You'll dig gently into it, and report to me if you find anything. I'll come and look; Ricardo will take pictures. Just remember to dig carefully, and don't step on any clues," he said. ➡

He set up his workers in squares, like checkers on a checkerboard. The workers each had blank squares all around them. "It's easier if you don't have people working right next to you," he said.

Work started. Vikki shovelled into the ground in her square. She kept a sharp lookout for any clues, but saw nothing. After almost an hour, Vikki was getting quite tired. Then she saw something in the ground. "Mr. Potter, come here!"

The little man came and looked where she pointed. "Hmm. An axe-head. Ricardo, take a picture here." Ricardo shot pictures while Mr. Potter gently brushed dirt away. "Amazing," he said. "I've never seen an axe-head like this before." Just then, another digger called for him. Mr. Potter went to that hole, when yet another digger called . . . and another.

Mr. Potter unearthed a spear point, several arrowheads, a couple of carved deer antlers. "I can't believe it!" Mr. Potter said excitedly to Vikki. "Please get Ms. Crane right away!"

Nora Crane almost slipped partway down the hill. "Nick should really be the one to look at this. I run the business. But he knows about digging."

Soon, she was with Mr. Potter. "This is a major find!" he said. "We've been digging up all sorts of things—and none of them were made by Compaunoags!"

"Are you sure of that?" Vikki said.

"Young lady, I've been digging up Compaunoag arrowheads since I was a little boy. The things we've found today are nothing like them."

"I'm going to call the newspaper," Nora said.

Work soon stopped after reporters began asking questions. Mr. Potter was in his glory.

But he was back at the dig the next morning. "Today, we really get down to work."

One of the workers arrived with a newspaper in his hand. "Have you read this?"

The Mystery Deepens

Mr. Potter shook his head. He took the paper. "MYSTERY FINDINGS ON DISPUTED LAND. Front-page news! What do you know about that?" He smiled. But the smile left his face as he read on. "When contacted, archeologists at the State University hoped to be on the site tomorrow at the latest . . ." Mr. Potter crumpled up the newspaper. "No! They'll ruin everything! Better not to

have a dig if I'll have them around."

Everyone went back to their squares but very little work got done. They all kept waiting for the professionals to arrive. But evening came, and no archeologists. "That will be all for today," Mr. Potter said, going off. The workers piled their tools and left . . . all except Vikki, Ricardo and Zack.

They looked over the quiet field. Vikki took a shovel, and handed one to Zack. "Mr. Potter mentioned that the Crane Construction people knew where he was going to dig. You dig in one of those spots. I'm going to pick somewhere else."

They dug till almost dark. Zack found three more Indian tools. Vikki found none. They gathered in a little hollow at the bottom of the hill to look over what they had found. "An arrowhead, a big pointed rock and a piece of bone with a picture of a man on a horse," Vikki said.

She turned them over in her hands. "Doesn't this help Crane Construction in the Indian trial?" Vikki wondered. "If another tribe lived there, the Compaunoag claim would look silly."

"Maybe somebody put them there?" Zack said.

Vikki's words were lost in the roar of an engine.

The Gang saw a bulldozer teetering on the hill-top. Its engine rumbled and its treads spun. Then it was zooming down the hill—straight at them!

Will the Bloodhound Gang be smashed flat?

To find out, read the conclusion of "The Case of the Puzzled Pot Hunter" in next month's issue of 3-2-1 CONTACT.



Puzzling Pots

The Bloodhound Gang aren't the only ones with some puzzling pots. Here are eight pots dug up just for you. They may all look the same, but they're not. Can you find the matching pairs?

Answer on page 37.



MAIL

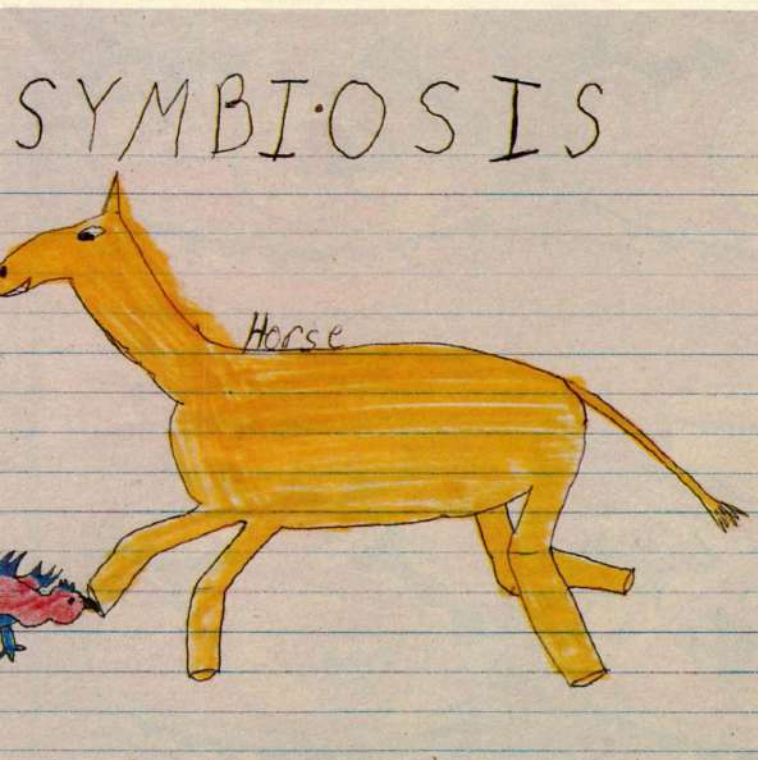
Contest Winners Remember when we asked you for your own ideas about symbiosis—ways that animals live together and help each other? Here are our favorites:



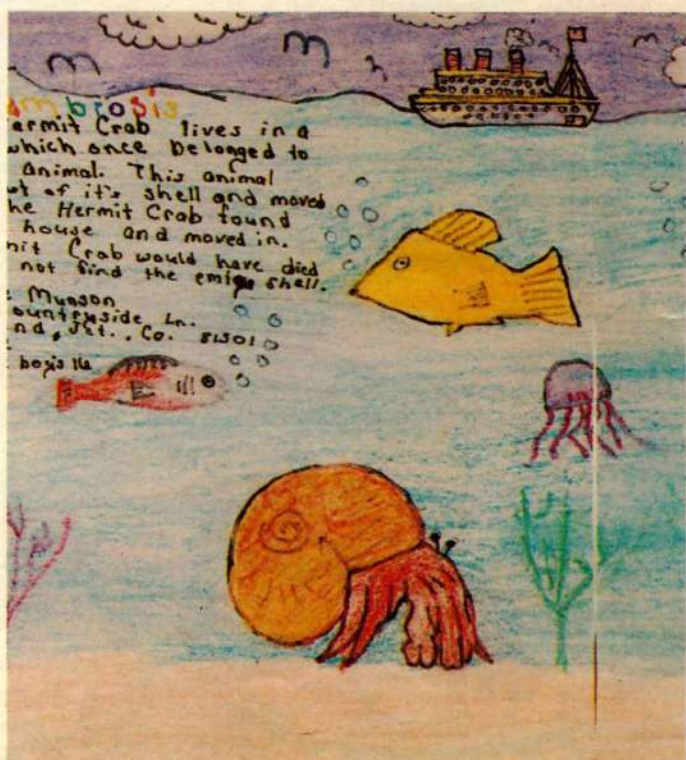
Marc Singer, Lanham, MD. The squitaract, a made-up sea mammal, draws giant squid to it for a hiding sperm whale to eat. The whale protects the squitaract from sharks, pilot fish and shark suckers.



Nicole Uzzle, Malvern, PA. The Direl duck carries the goldfish up the river because the goldfish will guide the duck to the fish the duck likes to eat.



Tim Holt, Las Vegas, NV. The bird cleans the horse's hoofs while sharpening his beak. And the horse gets a shoeshine!



Alise Munson, Grand Junction, CO. The hermit crab lives in a shell which once belonged to another animal.

What's in a Name?

Dear CONTACT,

Why is your magazine called 3-2-1 CONTACT?

Mary Banker
Bedford, Virginia

Dear Mary,

The magazine took its name from the television show. So, the real question is: "How did the TV show get the name 3-2-1 CONTACT?" But whether you ask the first question or the second, the answer is the same.

The first part of our name, 3-2-1, comes from the phrase "Three, two, one, blast-off!" Finding out new things can be as exciting as a rocket lifting off!

The second part, CONTACT, means just what it sounds like... getting in touch. The whole idea behind 3-2-1 CONTACT—both the magazine and the show—is to get you in touch. In touch with the world around you.

And don't forget, we want you to get in touch with us, too!

Panda Update

Dear CONTACT,

I caught an error in an issue where you talk about the baby panda from Mexico City's zoo. You say "el pandito," but in Spanish you say "el pandita" or "el panda."

Also, the name of our panda is not Powi, it is Tohui.

Arturo Magidin
Mexico City, Mexico

Dear Arturo,

To be sure, we checked with the zoo in Mexico City. We got the correct spelling—Tohui, meaning boy. And we were all set to tell you, but then we got more news from the zoo.

When the head veterinarian there took a closer look, he found

out that the panda is not a "he" but a "she." So her name was changed to Teheque, which means "girl."

We also found out that the panda now weighs 231 pounds (105 kg). That's three times heavier than when it was born. It's grown a lot, too. It's now four and a half feet (1.3 m) tall. That's one foot (.3 m) taller than he, er...she was on her first birthday, July 21, 1982. Happy second birthday!



What's the Question?

Dear CONTACT,

A while ago my sister wrote to your Any Questions? and you did not put it in your magazine. Why? Please write a letter to tell me.

Shannon Gerhold
Westminster, Maryland

P.S. My sister's name is Heather.

Dear Shannon,

Heather's question is one of hundreds we get from our readers every month. Unfortunately, we can't use all the questions. If we printed them all, every page of the magazine would be filled with the questions and their answers. We

would have to change our name to Any Questions Magazine! P.S. Tell Heather not to give up. We're always on the lookout for a good question. Maybe next time we'll pick hers.

Decisions of the Judges Are Final

Dear CONTACT,

I was wondering if you would want to have a poem contest? There would be four winners. Ones that have originality, meaning and style. Do you think maybe I could judge the winners? I hope you will say yes to my question. I'm serious!

Carrie Coward
Waxahachie, Texas

Dear Carrie,

We've already taken care of your request. A few issues back we printed a poetry contest. We gave our readers some facts about an animal related to camels—the alpaca. We asked for poems describing the shaggy animal.

So, you see, we can say yes to your first question. But we have to say no to your second. The judges for every one of our contests are the people here at 3-2-1 CONTACT. Sorry!

By the way, look for the winners of the alpaca poem contest. They will be in next month's issue.

We Want Mail!

Dear Readers,

We really love hearing from you. The questions, ideas and complaints we get help us make CONTACT a better magazine. So why not drop us a line? We can't answer every single letter, but we do read them all. Send your mail to:

3-2-1 CONTACT: Letters
P.O. Box 599
Ridgefield, NJ 07657

Reviews &

Want more information on some of the things in this CONTACT? Or just something to do and see for fun? Keep reading.

Treasure Hunt

You don't have to go diving in the ocean to look for treasure. Here's a hunt you and your friends can go on in your own neighborhood. Break up into teams and make sure each team has a copy of the list below. The team that first gathers all the treasures on the list wins!



A feather
A finger print
Something slimy
A pure black rock
Today's weather report
3 strands of hair from
different people (one gray)
A non-American coin
An animal riddle
3 kinds of leaves
A postcard with an ocean on it

Collecting Books

Were you bitten by the collecting bug after our collector story? These books will help you get started. Look for them in your library or at a bookstore.



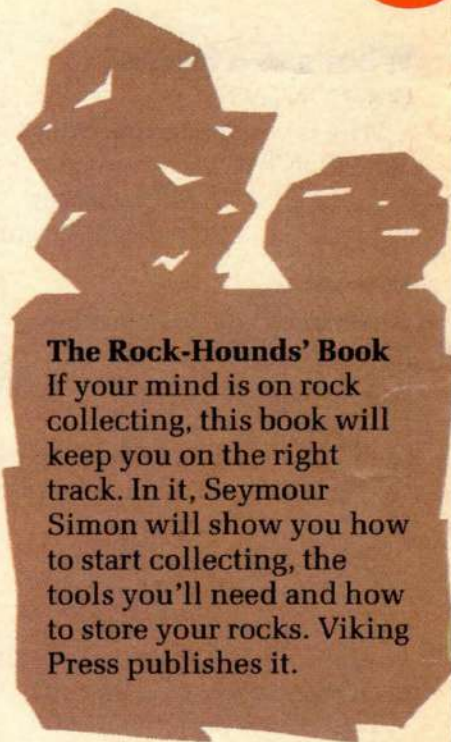
My Garden Companion

From muffin pan gardens in your bedroom to planting full-fledged outdoor gardens, this guide shows you all the steps. Jamie Jobb tells you about various plants, where they'll grow and even leaves you room to write about what's happening in your garden. This book is published by Sierra Club/Scribners.



Seashell Collectors' Handbook & Identifier

Color photographs and diagrams will help you identify your shell collection. This book by Sonia B. Murray gives detailed descriptions of each shell including where it can be found and what it's called. Sterling publishes it.



The Rock-Hounds' Book

If your mind is on rock collecting, this book will keep you on the right track. In it, Seymour Simon will show you how to start collecting, the tools you'll need and how to store your rocks. Viking Press publishes it.

3-2-1 Contest

Think of the most thrilling amusement park ride you've ever been on. Can you invent one that's better? Create a ride for this month's contest and tell us how it will give you the thrills and chills of your life! Be sure to include a drawing of your ride. Winners will get T-shirts. Send your drawing, description, name, address and T-shirt size to:
3-2-1 Contest: Ride
P.O. Box 599
Ridgefield, NJ 07657



Previews

Attention Skywatchers!

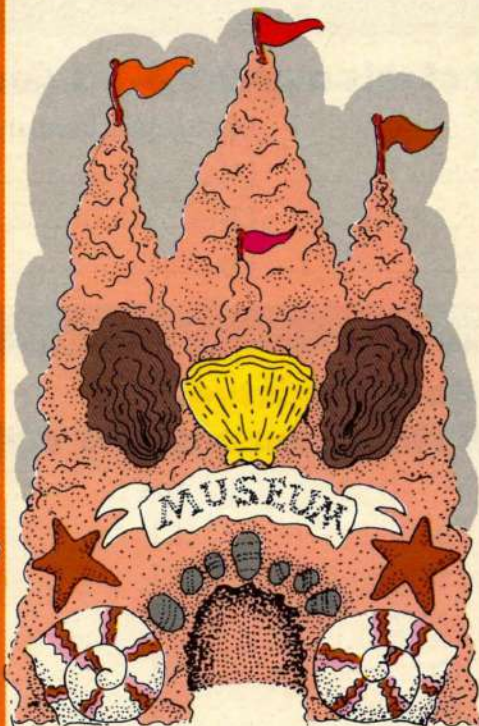
Get ready on the night of July 28th for the Delta Aquarid Meteor shower. If you find a nice, dark spot, you could see up to 20 shooting stars each hour.

Don't worry if you miss July's meteor shower. There's another one in August. The Perseid meteor shower even lasts for several days. But the best views will be on the nights of August 11th and 12th. Keep an eye out for this one. It could be one of the best of the year!

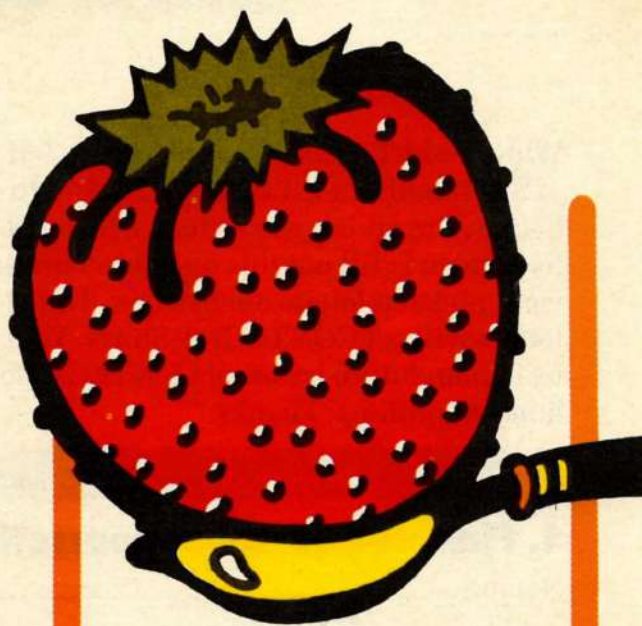
Sandcastle

This review was sent in by Thomas Taylor, Lincoln, VA.

Sandcastle is a museum just for kids. It is on Coquina Beach, Nags Head, North Carolina. It has many different exhibits focusing on the beach and beach wildlife.



They also have special children's workshops almost every day. These include things from riding a wave to sea-shore crafts to being lectured (in a fun way) on beach creatures. I like Sandcastle a lot.



Real Jam

Summer is a great time for eating all your favorite fruits. There are lots of great things you can make with them, too. How about trying your hand at homemade strawberry jam? All you need are strawberries, honey, lemon juice, a 6-ounce bottle of fruit pectin (ask for it at the grocery store) and a glass jar with a tight lid.

1. Wash and dry the jar and lid.
2. Wash the strawberries, then mash them in a bowl. You need about a cup.
3. Add $\frac{3}{4}$ cup of honey to the berries. Mix and let it stand for 10 minutes.
4. In a different bowl, mix a tablespoon of lemon juice and $\frac{1}{4}$ of the bottle of pectin.
5. Add the lemon and pectin to the strawberries and honey. Stir for 3 or 4 minutes.
6. Pour your jam into the jar. Leave about $\frac{1}{4}$ inch of space at the top.
7. Let the jam sit at room temperature for about a day. After that, store it in the refrigerator.



Contact Us!

Win a T-shirt! Here's your chance to tell us what you think of this month's 3-2-1 CONTACT. And to say thanks for your help, we're giving you a chance to win a T-shirt. All you have to do is fill out this questionnaire and mail it in. Then we'll pick ten letters out of a box. The kids who sent the letters will get CONTACT T-Shirts. Your answers will help us to plan future issues of CONTACT. So please give us your honest opinions. Thanks.

Mail to:
Reader Poll
P.O. Box 599
Ridgefield, N.J. 07657

1. First, tell us about yourself.

Name _____
 Address _____
 City _____ State _____ Zip _____
 Age _____ Grade _____ T-Shirt size _____ I am a boy _____ girl _____

2. Tell us what you thought of this month's 3-2-1 Contact.

My MOST favorite stories were:

(1) _____
 (2) _____
 (3) _____

My LEAST favorite stories were:

(1) _____
 (2) _____
 (3) _____

3. Here is a list of things to do in this issue.

Did you do any of them yet? Mark your answers with an X.

		Yes	Not yet	Not going to
Played the treasure hunt game	(pp. 8-9)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Started a collection	(pp. 16-19)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hung up the poster	(pp. 20-21)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Solved the puzzle	(p. 31)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wrote a letter for the letters page	(p. 33)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Saved Earthfacts for a notebook	(pp. 39-40)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. Okay, you're almost done.

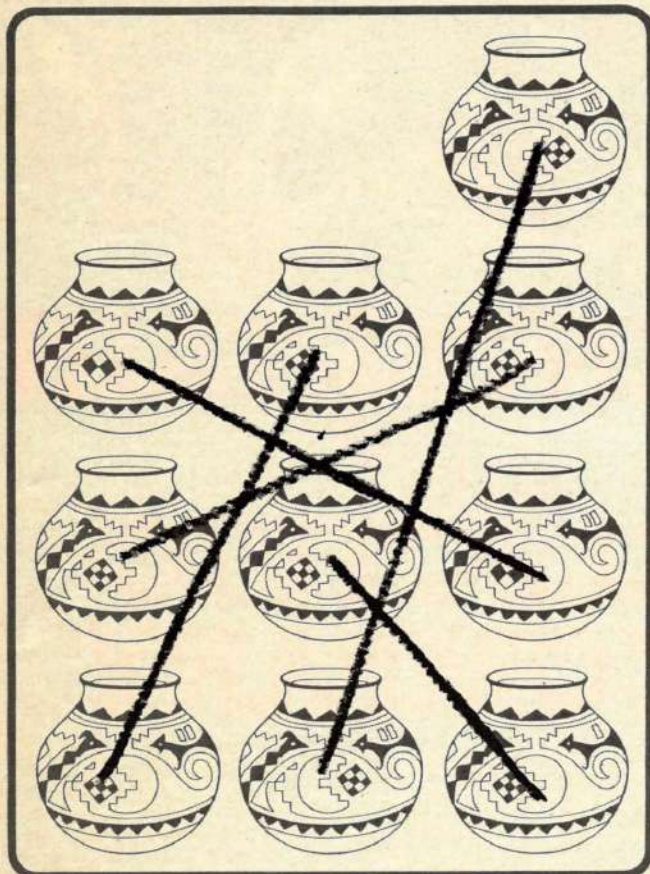
In this issue, there's a story about a man who searches for sunken ships and buried treasure. Would you like to see more stories about people who do interesting work? Yes ☐ No ☐

Tell us what kinds of people and jobs you would most like to read about.

(1) _____
 (2) _____
 (3) _____

Did It!

Puzzling Pots (page 31)



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Thank You! Special thanks to Mary Davis, librarian at the Museum of the American Indian in New York City, for help with this month's Bloodhound Gang story.

Next Month!

Here's a sample of what you'll find in the next issue of 3-2-1 CONTACT:

A Delicious Story

Visit a chocolate factory and then find out how much you know about chocolate.

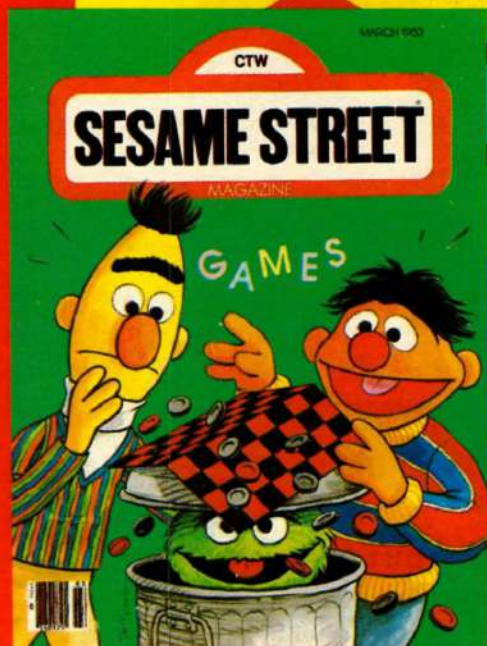
Achoo!

What makes some people sneeze, itch and scratch? Read all about allergies.

Bloodhound Gang

Read the conclusion to Vikki, Zack and Ricardo's latest case.

Plus Factoids, Letters, Earth Works and More!



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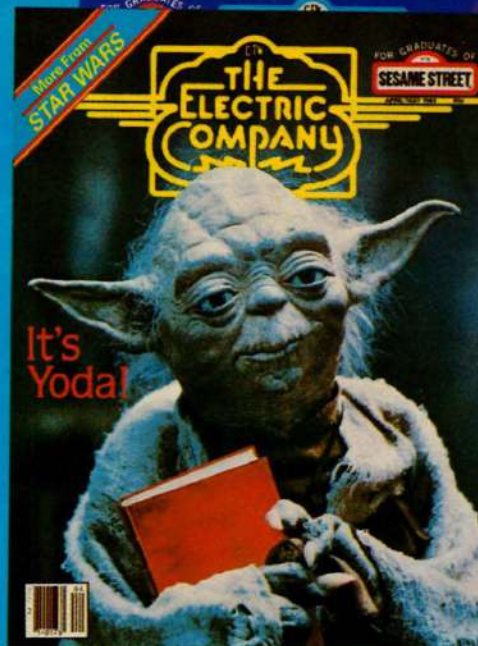
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Earthfacts: Craters

by Judy Gordon

Each month CONTACT will bring you another *Earth Works*. Save these pages in a notebook. Soon you will have your own guide to the wonders of the planet earth.

EarthWorks

- ☉ Craters are round holes in the ground. They form in two ways. Sometimes lava and steam from volcanoes explode out of the earth. That leaves deep holes. But sometimes, a hole is made by meteors crashing to earth from space.
- ☉ Earth's largest volcanic crater was formed by the eruption of Japan's Mt. Aso. This crater is 17 miles (27 km) long and 10 miles (16 km) wide. All of Manhattan could fit inside, with lots of room to spare.
- ☉ Huge volcanic eruptions sometimes form special craters called *calderas* (kal-DARE-uz). Tons of lava and ash are blown out. Then the top of the volcano falls in, forming the big crater. In 79 A.D. Mt. Vesuvius erupted in Italy. A crater 2½ miles (4 km) wide formed. So much lava and ash poured out that a whole town and over 2,000 people were buried.
- ☉ Giant craters are found underwater, too. One formed 100 years ago when a volcano on the island of Krakatoa erupted. Two-thirds of Krakatoa was blown to bits. The only thing left now is an underwater crater 4 miles (6 km) wide and .6 mile (1 km) deep.
- ☉ Some volcanoes have craters on top filled with water. During eruptions, boiling water and mud fly out. Poas, in Costa Rica, has a lake in its crater. When it erupted in 1910, a fountain of water shot 2½ miles (4 km) into the air.
- ☉ Scientists learn lots by studying craters. Lava and steam escaping from craters on volcanoes can mean an eruption. Studying rocks in craters gives clues to what minerals are found deep in the earth.
- ☉ Impact craters form when meteors hit earth. About two big enough to be seen hit each day.
- ☉ Meteor Crater in Arizona is one of the earth's most famous impact craters. When the meteor that made it hit earth, chunks of rock were thrown up to a mile away by the impact.
- ☉ In 1947 a meteor hit earth's atmosphere over eastern Siberia. It broke up and made over 200 small craters when it hit the ground.
- ☉ The largest impact crater known isn't here on earth. It's Caloris, on Mercury. This giant is 80 miles (128 km) wide—big enough to hold Rhode Island!

Below: New York City's Manhattan island is 12½ miles (20 km) long. But it could still fit inside the crater on top of Japan's Mt. Aso.



EarthWorks



Craters

You might think all craters are on the moon. But there are lots of them right here on earth. This is Crater Lake in Oregon. It's the deepest lake in the United States. The large crater that holds the lake was formed about 6,500 years ago. That was when a volcano called Mount Mazama erupted. The top fell in and a huge crater was left. Rain and snow filled it to create Crater Lake. Today, it is part of a beautiful national park.

For more on craters, turn to page 39.

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